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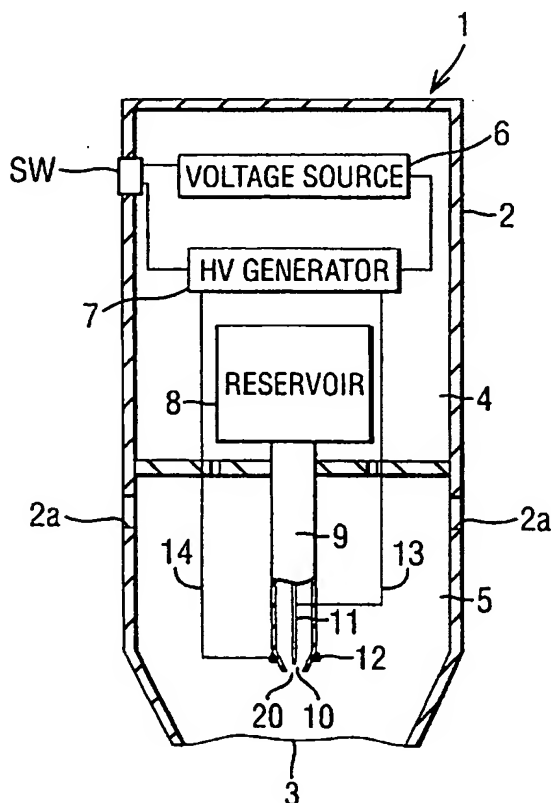
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(54) Title: DISPENSING DEVICES AND LIQUID FORMULATIONS



(57) Abstract: Methods are described of delivering biological material, which methods include the steps of providing a liquid formulation containing the biological material, supplying the liquid formulation to an outlet and subjecting liquid issuing from the outlet to an electrical field thereby causing electrohydrodynamic processing of the liquid without denaturing the biological material. In one example, the liquid formulation is provided by removing salts from a formulation containing biological material that does not denature in alcohol and then adding an alcohol to the formulation before supplying the liquid formulation to the outlet. An acid may be added to the liquid formulation before supplying the liquid formulation to the outlet.



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LR. LS. LT. LU. LV. MA. MD. MG. MK. MN. MW. MX.
MZ. NO. NZ. PL. PT. RO. RU. SD. SE. SG. SI. SK. SL.
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INTERNATIONAL SEARCH REPORT

International Application No

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61M11/00 A61M15/00 B05B5/16 A61K9/00 A61K48/00
A61M15/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61M B05B A61K C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99 49923 A (RENNIE PAUL JOHN ;PROCTER & GAMBLE (US)) 7 October 1999 (1999-10-07)	1,2, 7-21, 32-40, 53-56,58
A	<p>page 3, line 25 - line 29</p> <p>page 4, line 29</p> <p>page 6, line 1 - line 32</p> <p>page 6, line 24</p> <p>page 7, line 9 - line 13</p> <p>---</p> <p>-/--</p>	41,57

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>WO 98 03267 A (ELECTROSOLS LTD ;COFFEE RONALD ALAN (GB)) 29 January 1998 (1998-01-29) cited in the application</p> <p>page 2, line 23 - line 26 page 4, paragraph 3 -page 5, line 1 page 12, line 31 -page 13, line 1 page 18, last paragraph -page 19, paragraph 1 page 22, paragraph 2 -page 23, paragraph 1 page 24, line 18 - line 24 page 29, paragraph 1 page 5, paragraph 3 -page 6, paragraph 1 figure 1</p>	<p>1,2,8, 10-16, 19-21, 52,53, 55,58</p>
X	<p>GB 2 273 893 A (UNILEVER PLC) 6 July 1994 (1994-07-06)</p> <p>page 7, paragraph 1 page 12, paragraph 2 page 13, line 11 - line 12 page 13, line 32 - line 33 page 14, line 17 - line 33 page 15, paragraph 3 page 25, line 17 -page 26, line 2</p>	<p>1,2, 7-19,21, 32-38, 40,42, 52-55,58</p>
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A	<p>column 12, line 12 - line 15 column 12, line 34 - line 38</p>	<p>3</p>
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INTERNATIONAL SEARCH REPORT

International Application No
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	WO 00 35524 A (PIRRIE ALASTAIR BRUCE ;DAVIES NEVILLE (GB); ELECTROSOLS LTD (GB);) 22 June 2000 (2000-06-22) cited in the application page 42, line 26 - line 28 page 43, line 24 -page 49, line 27 figure 2	1,2,8, 10-16, 19-21,58
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International Application No

PCT/GB 01/01529

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